

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte DONG-SEOG HAN

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Appeal No. 1998-1700  
Application No. 08/268,460

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HEARD: November 15, 2000

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Before KRASS, JERRY SMITH, and GROSS, Administrative Patent Judges.

GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 and 12. Claims 3 through 8 and 13 through 19 stand objected to as being dependent upon a rejected base claim. Claims 9 through 11 have been canceled.

Appellant's invention relates to a symbol timing recovery apparatus in which the sampling clock is generated based on a plurality of detected positive-going zero-crossing points.

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Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A symbol timing recovery apparatus for sampling a received signal containing symbols which is received in a receiver of a high-speed data transmission system, and for recovering a symbol timing of the received symbols, said symbol timing apparatus comprising:

means for receiving the signal;

means for generating a sinusoidal wave based on said received signal for recovering the symbol timing;

means for detecting a positive-going zero-crossing point of the sinusoidal wave; and

means for generating a sampling clock to sample the received signal based on a plurality of positive-going zero-crossing points detected by said means for detecting a positive-going zero-crossing point.

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Tjahjadi et al. (Tjahjadi)                      5,001,729                      Mar. 19, 1991

Claims 1 and 12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tjahjadi.

Reference is made to the Examiner's Answer (Paper No. 18, mailed April 29, 1997) and the Supplemental Examiner's Answer (Paper No. 21, mailed October 16, 1997) for the examiner's complete reasoning in support of the rejection, and to

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appellant's Brief (Paper No. 14, filed July 2, 1996) and Reply Brief (Paper No. 19, filed June 30, 1997) for appellant's arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art reference, and the respective positions articulated by appellant and the examiner. As a consequence of our review, we will reverse the anticipation rejection of claims 1 and 12.

The examiner asserts (Answer, pages 4 and 5) that Tjahjadi teaches using plural zero-crossing points to generate the sampling clock. More specifically, the examiner latches onto Tjahjadi's use of the word "points" in both the abstract and column 22, line 25, and relies on the individual word rather than looking to the entire disclosure. The examiner should note that although Tjahjadi mentions locking onto the zero-crossing points (in the abstract), the next sentence refers to "[t]he lock onto the zero-crossing point" (i.e., a single point). Similarly, in the sentence after that which discusses synchronizing with the zero crossing points P (in

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column 22), Tjahjadi states that "the primary sampling point lies exactly at point P" (again using the singular form of the word). Thus, the portions relied upon by the examiner are ambiguous at best as to how many zero-crossing points, and more specifically how many positive-going zero-crossing points, are used to generate the sampling clock.

Taking the entire disclosure as a whole, we find that Tjahjadi uses a single positive-going zero-crossing point each cycle, as argued by appellant (Brief, pages 5-8). Tjahjadi discloses (column 23, line 8-column 24, line 37) taking four samples per cycle, determining which is the primary sample point or the point closest to the positive-going zero-crossing point, calculating the lead or lag step size from the positive-going zero-crossing point, and adjusting the recovered baud clock to cause the primary sampling point to occur at the zero-crossing point. In other words, multiple sample points are used to generate the sample clock, but not multiple positive-going zero-crossing points. The clock, rather, is generated so that the primary sample point coincides with a single positive-going zero-crossing point.

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Accordingly, Tjahjadi fails to meet every limitation of either claim, and consequently does not anticipate claims 1 and 12.

CONCLUSION

The decision of the examiner rejecting claims 1 and 12 under 35 U.S.C. § 102 is reversed.

REVERSED

ERROL A. KRASS	)	
Administrative Patent Judge	)	
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	)	
	)	
	)	BOARD OF PATENT
JERRY SMITH	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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ANITA PELLMAN GROSS	)	
Administrative Patent Judge	)	

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